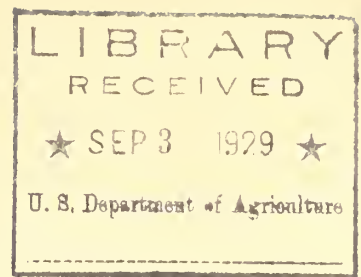


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BLISTER RUST DEMONSTRATION
May 19-21, 1928.



Saturday, May 19th.

New York

Albany - Leave Hotel Wellington.

Saratoga -

State Nursery. This is supposed to be the largest forest tree nursery in the world. It has 91 acres under cultivation and a capacity of 50 million trees. The Conservation Department has three forest tree nurseries containing between 90 and 100 million trees, about one-third of which are white pine. Over 22 million trees were planted in 1927, about one-half of which were planted by private landowners. Demonstrates large scale production of forest trees for reforestation purposes at low cost.

Luther's Forest Preserve. Mr. Luther and his son have reforested about 4,000 acres of waste land within the past few years with white, red and Scotch pine. The preserve contains a total of 7,000 acres, part of which is natural growth. In 1924 the cost of planting plus the trees was \$8.75 per acre. In 1926 Mr. Luther planted one million trees at a cost of \$9.67 per acre, with trees planted on an average of 1,500 per acre. This is an excellent demonstration of reforestation on submarginal land as a business proposition by a private landowner.

Glens Falls -

City Reservoir Plantations. Since 1910 the city of Glens Falls has planted over two million trees on their watershed. White pine has been planted more extensively than other species but they have also used Norway spruce and red and Scotch pine. Three-year planting stock has been used over most of the area. Demonstrates municipal reforestation for protection of watershed.

Lake George -

Hayden Estate. Blister rust was found on this estate in 1917, infection being severe on young pines under 10 feet high, thousands of which have died and disappeared from the stand as a result of the rust. Cultivated black currants, and wild gooseberry bushes scattered throughout the woods, were responsible for the infection. At the present time many mature trees on the Hayden estate and the adjacent estate to the south show damage from blister rust cankers which started in 1911 to 1917. All of the Ribes were eradicated in 1918. In one corner of the infection area where the wild Ribes could not be thoroughly uprooted because of the rocky nature of the ground a few Ribes bushes sprouted and in 1921 began to cause light

infection of pine reproduction for a distance of 200 feet around them. These few bushes still remain but have not greatly increased in size. They continue to infect pines within a short radius. Reproduction of white pine has greatly increased since the Ribes were destroyed 10 years ago. This area demonstrates damage to large trees, effectiveness of Ribes eradication in controlling the rust, and the need for systematically rechecking the ground for Ribes at intervals of 5 to 10 years. It is an excellent area to see blister rust on pines of all ages and cankers in all stages of development.

Warrenburg -

Kelm Mt. This area of two acres of mixed pine and hardwood brush contains 1,107 white pines 14 to 16 years of age. One thousand and three, or over 90 per cent of these trees are infected with the blister rust. Not a tree was dead in 1920, 9 per cent were dead in 1923, 30 per cent in 1926 and 43 per cent in 1927. Four hundred and eighty of the trees are dead, 486 more are dying, making a total of 966 dead and dying trees or a mortality of 87 per cent. The infected trees had about 9,000 blister rust cankers. Eight of the 16-year old trees had between 100 and 200 cankers per tree. It was estimated that the two acres of pine would have produced between 50,000 and 60,000 board feet of lumber if protected against blister rust. The infection came entirely from 174 wild Ribes (R. rotundifolium). This area demonstrates accumulative blister rust damage and complete loss of young pine 14 to 16 years of age under natural forest conditions as a result of blister rust attack.

Sunday, May 20th.

Warrensburg -

Caldwell Area. This area contains medium-aged white pine severely infected with blister rust. This is a recently discovered area and data on the per cent of infection, number of Ribes, length of time the rust has been present, etc., is not yet available. However, it is worth careful inspection and demonstrates blister rust damage to medium-aged pine.

Cunningham Burn. A dense stand of pine and hemlock was lumbered here in 1923 and 1924. On May 13, 1925, a severe fire swept through the slash, developing into a crown fire in the adjacent reproduction and pole stand. Ecological study plots were started in 1927 in several places on this burn to determine the effect of logging and fire on the Ribes population. The Ribes population in some parts of this burn increased to 270 bushes per acre within two years after the fire, mostly as a result of seedlings germinating from seed stored in the duff, that had escaped the fire. Part of the area has been planted to white pine which have not been protected and are consequently being killed by the rust. This

area demonstrates the influence of lumbering and fire on Ribes restocking and the need for eradicating Ribes on areas to be planted with white pine.

Hackensack Mt. Area. Mature pine stand with shade form of Ribes. There are 160 to 165 Ribes per acre under the oldest stand. Seed beds were prepared under the stand to test the viable-seed content of the forest floor. On the hillside below a similar stand was lumbered and examination of one plot showed 1,305 Ribes per acre. Under advance reproduction the Ribes were only 40 per acre and dying from competition. This demonstrates effect of shade in retarding growth of Ribes and the effect of logging in increasing the Ribes population.

Pack Demonstration Forest. This forest of over 2,000 acres belongs to Syracuse University. It contains a stand of very old second growth white pine. The white pine has been protected from blister rust by the eradication of Ribes. This area demonstrates the value of white pine as a timber crop.

McPhillips Plot. This plot of 1 acre was first examined in 1923 and again in 1926. There were 67 Ribes on the plot and pines ranging in age up to 30 years. In 1923, 65 percent of the trees were infected and 46 per cent dead or dying. In 1926, 39 per cent of the trees were infected and 32 per cent dead or dying. The reduction in percentage of infection and of dead and dying trees during the 3-year interval is due to the death and disappearance of many of the trees found diseased in 1923 and the appearance of new seedlings upon which infection was not visible at the time of examination in 1926. This area demonstrates severe damage to a young mixed-age white pine stand and the comparatively quick death and disappearance of young trees on unprotected areas.

Chestertown -

Darrowsville Area. This area of 152 acres was eradicated in 1918. To determine the effectiveness of control a study was made in 1923 by running a rod-wide strip on a compass line across the area from which Ribes had been eradicated and across the adjoining uneradicated tract. The result of this study is given below on a per acre basis.

Comparison of Pine Infection Conditions on a Control Area and Adjacent Unprotected Tract at Chestertown, New York, September, 1923.

Area	Trees per Acre	% Trees Inf.	Year Oldest Inf.	Number of Cankers by Infection Age Class		Number of Ribes Seed- lings per acre since 1918
				1918 and before	Since 1918	
Not erad- icated	524	15	1915	2.5	118.0	38.0
Eradi- cated	319	1	1915	3.5	1.5	9.1

On the area cleared of Ribes in 1918 only one per cent of the trees were diseased, while on the adjoining uneradicated tract, 15 per cent of the stand was infected. From 1915 to 1918 the uneradicated area developed 8.5 cankers per acre against 3.5 cankers per acre for the eradicated tract. Since 1918, an average of 1.4 new cankers per acre have originated in the eradicated area, while in the unprotected tract 118 new cankers per acre have appeared. A Ribes survey carried on in combination with the pine infection study showed that since 1918, 38 Ribes seedlings per acre had developed on the uneradicated area against 9.1 on the eradicated area or a reduction of about 76 per cent. This area demonstrates that the eradication of Ribes has checked the spread of the rust on the control area and protected the pine from commercial damage.

Remington Area. This land was a wheat field the year following the Civil War. It seeded into white pine naturally and the best part of the stand has produced about 75,000 board feet per acre. The stand averages 33,000 board feet per acre. The Ribes on this tract were eradicated in 1918. They averaged about 80 per acre, but were so suppressed that they would not have been a hazzard to the present stand. This demonstrates the growth white pine will make in 60 years under optimum conditions.

In the winter of 1919-20 part of the Remington stand was logged. The year 1919 was a good seed-year and heavy white pine re-production averaging about 100 trees per square foot came up on the logged area. Also Ribes began to appear. In 1924 there were 36 Ribes on the area and circular study plots 25 feet in diameter were laid out around a number of these bushes. A re-check of one of these plots in 1927 which contained 685 trees showed 110 or 16 per cent infected and 10 or 1.4 per cent dead. Compared with the results of the 1924 examination of the plot, there has been an increase in infection of 9.6 per cent. This area demonstrates good white pine reproduction following logging, the appearance of Ribes following logging and the killing off of reproduction by blister rust.

Monday, May 21st.

Chestertown -

Faxon Plantation. This plantation at Chestertown, N. Y. is one of the oldest white pine plantations in the State. It was planted in 1884 by transplanting native trees. The spacing is too wide according to present practice. In 1912 one-third of an acre was measured and found to yield at the rate of 23,000 board feet per acre at the age of 28 years. In 1918 Mr. Faxon stated he was offered \$500 per acre for the stumpage on the tract. There has been no thinning in this plantation and it is likely that the growth could have been accelerated by removing a

portion of the trees during the last 10 years. The gooseberries and currants were destroyed in this planting before blister rust became established. About 80 wild gooseberries per acre were pulled but they were all very small, weak bushes, due to the density of the shade under the pines. It demonstrates one of the pioneer attempts at reforestation in New York.

Directly across the road is a white pine stand on land that was cleared and plowed about 65 years ago. Adjacent to this tract is a field which seeded to pine in 1919. This field was mowed in 1920, partly mowed in 1921 and 1922 and since then has not been touched. It is a wonderful demonstration of the vigor of white pine in reproducing on worn out cultivated land. West of this field is a white pine planting made in 1912 by Mr. Faxon using 3-year old transplants from the State Nursery. It is of average growth. South of the plantation is a 10-acre pasture which was cleared of all tree growth in 1902. It now bears a closed stand of white pine, all of natural seeding from seed-trees at the edges of the lot. It demonstrates the excellent natural regeneration of white pine in this region.

South of the Faxon plantation and extending to the Starbuck Farm is a magnificent even-aged stand of white pine which came up after logging about 1919. Along the fences and in a few other places are isolated Ribes each with a circle of infected pines. This demonstrates the power of a few bushes to cause appreciable damage under favorable conditions.

Starbuck Lot. Over-stocked second growth pine, about 40 years old. Dead trees partly removed for sugar wood. Growth stagnated by density; stand needed thinning at a much younger age. This demonstrates an exceptionally heavy stocking of pure pine and shows the potential possibilities of growing white pine as a profitable crop by applying simple management measures.

Horicon Plot. This plot of 2 acres contained 77 Ribes and 1,309 white pines of mixed age. There was considerable reproduction and not a dead tree on the area in 1920. In 1923, 11 per cent had died, and in 1926, 40 per cent were infected, 19 per cent dead and 13 per cent doomed. The reproduction has disappeared. The damage on the plot (dead and doomed trees) amounts to 32 per cent. This area demonstrates damage to mixed-aged pasture white pine, the killing off of reproduction and how blister rust keeps pasture pine stands from gradually developing into timber stands.

Thaxter Lot. Advance reproduction of white pine, exceptionally heavy, under scattered second growth left from last logging. Ribes were plentiful and caused considerable infection, but had been much reduced in size and number by competition when eradication was done in 1927. This demonstrates the value of management of pine to secure advance reproduction.

Pottersville Area. Blister rust has been present on this area eight years and 75 per cent of the young trees have been killed or are dying from this disease. This area demonstrates blister rust damage to natural growth young pine up to 10 years of age.

Return to Albany.

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5-17-28

